THE FIRST SOUTH AMERICANS: ARCHAEOLOGY AT MONTE VERDE

When did human beings first set foot in the New World? How did they get here? What lifeways did they follow? How did they adapt to and affect the ancient American ecosystem? These questions have been hotly debated for over 100 years. Scientists now agree only that big-game hunters were in North America by 11,500 years ago. The earliest possible date for the initial arrival of early humans and other aspects of their culture are disputed, although field work over the last fifteen years has yielded more evidence about their economy, technology and social organization. But the biggest surprises have come from South America, where recent work suggests that this continent was occupied by at least 12,000 years ago, and possibly much earlier, by people with very diverse subsistence strategies.

In recent years, the most significant advances in the study of the First Americans have come from innovative data recovery and analysis techniques that have yielded vastly more accurate reconstructions of ancient environments and subsistence strategies. For example, the soil from a house floor at Monte Verde, in Chile, contained amino acids specific to collagen, a protein found in bone, cartilage, and skin. Microscopic analysis of the material suggested that a thick skin, possibly a mastodon hide, had been used in the construction of the shelter. The first South Americans were not just specialized big-game hunters armed with large bifacially-chipped projectile points, like the Clovis hunters of North America, but collected wild plant foods and fished in streams and lakes. A few North American sites, such as

PELOSTOCENE HUNTER-GATHERERS IN THE CHILEAN FORESTS
Meadowcroft Rockshelter, have also provided evidence of diverse economic strategies at an early date.

In the early 1970s, evidence about the first South Americans was limited to a small series of stone tools and animal bones, mostly from caves and rockshelters. Dates for these sites were often questionable, and many of the tools were not clearly made by human hands. Twenty years of work by Latin American archaeologists and others have provided more reliable and accepted data. Sites such as Tequendama, Tibito and El Abra in Colombia, Monte Verde in Chile, Los Toldos in Argentina and Pedra Furada in Brazil are all radiocarbon dated to 11,500 years ago or possibly earlier. While the minimum occupation age of South America appears to be around 12,000 years ago, some evidence suggests a possibility that the earliest South Americans actually arrived as long ago as 20,000 to 35,000 years ago.

Monte Verde Discovered

The Maullin River flows through the cool forested country west of the Andes in South Central Chile. In 1976, while directing the anthropology program at the Southern University of Chile, in Valdivia, I was surveying the river near the site of Monte Verde with a number of Chilean and Argentinean colleagues. Buried in the banks of a small tributary creek, we found an unusual site. Layers of peat bog, which only form in cool wet climates where organic materials are water-logged before they have a chance to decay, had preserved organic remains to an extraordinary degree. Not only did we find chipped stone tools and animal bones but also well-preserved wooden tools, house foundations of wood and earth, and the remains of medicinal and edible plants. These suggested the presence of a complex village settlement.

To our surprise, radiocarbon dates on both the cultural and non-cultural levels place this settlement between 12,000 and 13,000 years ago. In another area of the site, deeper deposits contained stone tools and possible cultural features that may be even older.

At Monte Verde, the extraordinary preservation, diversity, and complexity of organic and inorganic remains have been studied by an interdisciplinary research team to reconstruct the paleoecology of the site area and to critically evaluate the evidence for human intervention in the site. Specialists include more than sixty scientists from such disciplines as geology, palynology, botany, entomology, animal pathology, paleontology, ecology, forestry engineering, malacology, diatomology, and microbiology.

The area around Monte Verde today has moderately warm, dry summers and cold, rainy winters, with a mean annual temperature fluctuating between 12 and 15 C. The climate that prevailed in the late Pleistocene after the ice sheets receded resembled this setting, although it was probably slightly cooler and more humid. A forest made up of a mixture of deciduous and coniferous trees covers the region today; it abundantly supplies numerous varieties of edible tubers, nuts, berries, fruits, and soft and leafy plants throughout the year. There are also small game, freshwater mollusks, and fish. In late Pleistocene times, mastodons, saber-tooth tigers, ground sloths, and probably camelids roamed the area. As the Late Pleistocene sea level was lower, the nearest point on the Pacific coast lay about 65 kilometers west of the site and offered many edible species of marine organisms. The early inhabitants of Monte Verde could choose from all of these varying sources of food.

Late Pleistocene Settlement Structure

The excavation at Monte Verde was divided arbitrarily into east and west sides. On the east side the remains of ten or eleven foundations of residential huts were recovered. The foundations measure about 2.5 by 3.5 meters and are formed by small timbers, limbs, and roughly shaped planks usually held in place by wooden stakes. Fallen branches and vertical post stubs reveal that the hut frames were made primarily of hardwoods. The side walls were placed against a log foundation and then apparently draped with animal skins as suggested by the presence of a few small fragments of skin still clinging to the fallen side poles. Preliminary results of microscopic and other studies by microbiologists and pathologists suggest that the skins are
most likely from a large animal, probably a mastodon.

A wide variety of plant remains, stone tools, food stains, and small braziers (shallow pits for holding burning coals) was found on the living surface inside each hut. The braziers, which contained ash, specks of charcoal, and the remains of numerous plant foods, were probably used to heat each hut and to warm the food. Cooking was evidently a communal effort, as shown by the discovery of two large clay and charcoal hearths centrally located outside the huts. The recovery of three roughly-shaped wooden mortars and several grinding stones near the hearths suggest that the preparation of plant food took place next to the hearths.

Who were these ancient South Americans? No human bones have yet been recovered from the excavations at Monte Verde, but there are two indirect sources of information about the site's inhabitants. One is the imprint of a foot preserved in clay around a large hearth. Another consists of possible coprolites (fossil excrement) that appear to be of human origin. These were recovered from small pits dug in the ground also near a hearth.

The west side of the site is characterized by a unique structure and activity area. The central feature is a roughly ovoid-shaped artificial rise of sand with a little gravel. Resting on this rise is an architectural foundation made of sand and gravel compacted to form a peculiar wishbone shape. Fragments of upright wooden stubs were present approximately every few centimeters along both arms of the structure. Presumably these are the remains of a pole frame draped with hides. The same type and size of braziers recorded on the east side of the site were found both inside and outside the structure. Of particular interest is the association of the hearths with preserved bits of apparent animal hide, of burned seeds and stalks of bulrush reed, and of masticated leaves of plants found in warmer environments and used today by the local Mapuche Indians for medicinal purposes. The shape, the location, and the artifactual content of the wishbone feature suggest that the structure and this end of the site served a special purpose, rather than as living quarters.

**Tools and Food Remains at Monte Verde**

The stone tools from Monte Verde are similar to those from other sites in the Americas, although the use of naturally fractured stones, common at Monte Verde, has not been widely reported from other sites. The organic remains, however, are more unusual. More than four-hundred bones, including those of extinct camelids, mastodons, and small game were recovered from the site. Most of the bone remains are rib fragments of at least seven individual mastodons. Several bones were modified as possible digging sticks, gouging tools, or other implements.

Beside the wooden architecture foundations, several types of artifacts made of wood were excavated, including a sharply pointed lance-like implement, three crude wooden mortars, two tool hafts or handles, and more than three hundred pieces of wood

![Sketch of archaeologists finding evidence of skin houses, wooden tools, footprints, and coprolites at the site.](image-url)
exhibiting cut or planed facets, burned areas, cut marks, and/or smoothed and thinned surfaces. Several bones were sharpened and burned. Their association with underground plant parts (tubers and rhizomes) and with grooved wooden slats with horizontal grooves suggest that they might have been used as digging sticks and gouging tools.

What did the ancient Monte Verdeans capture with their assortment of stone, bone and wooden tools? From the array of inorganic and organic remains, we can determine that they were exploiting resources from distant reaches of the Mauillin Valley. Most of the differing environmental zones were aquatic areas: swamps, bogs, river bottoms, marshes, estuaries, and lagoons. How many people lived at the site? Ten or eleven residential structures and one unique structure have been excavated. Among the modern Mapuche, similar huts are occupied by two to three individuals. By analogy, we estimate that at least 25 to 35 individuals lived at Monte Verde during the Late Pleistocene.

If wood had not been preserved, we would have recovered only stone tools, postholes, stains and perhaps bones and mollusk shells. Evidence of plant foods and most of the residential characteristics that tell us this was a village would have been lost. In fact, the site might well have been interpreted as a kill site with a temporary residential component, like most of the North American palaeoindian sites.

Conclusion

The preservation of the perishable materials at Monte Verde, along with the diversity of the social, technological, and economic activities represented there, makes this site exceedingly important and scientifically unique at this point in time. Monte Verde warns us all to keep an open mind toward the possible diversity of lifestyles of the first Americans and of the various ways these lifeways might be expressed and preserved in a local archaeological record.

Furthermore, this very early dated occupation site comes from the southern end of South America and hence reminds us that we will probably discover and verify yet earlier sites in North America in the future. The next few years will undoubtedly yield additional information from both continents about the entry date of the first Americans and about their environment, technology, and lifeways. But even if more such information is discovered and accepted, the emotionally charged issue of when the first humans entered the New World may never be settled, since even if we discovered the very first evidence of that arrival, we probably would never recognize it as such. It is the questions being asked and not a single answer being sought that is the driving force motivating this scientific search on two continents for clues to the earliest Americans and to the solutions they developed to flourish in the environments in which they lived.

For Further Reading:


Latin American 'specialists who have contributed to the documentation of the first South Americans include: G. Correal, G. Ardila, J. Cruxent, A. Cardich, L. Nunez, G. Politis, N. Flegenheimer, N. Guidon and P. Schimitz.

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